

REMARKS

Claims 1-7, all the claims pending in the application, are rejected. Claims 1, 6 and 7 are amended. New claims 8 and 9 are added.

Drawings

Applicants respectfully note that the drawings originally submitted with the application have not been acknowledged or approved. The Examiner's attention to this matter is requested.

Claim Rejections - 35 U.S.C. §112

Claims 1-7 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is traversed on the basis of the amendments made to the claims, as explained subsequently.

As to all the claims, the Examiner requires that a reference to "steps" of the claimed method should be added. Applicant has endeavored to do so at appropriate places in the claims.

With respect to claim 6, the Examiner notes that the steps of claim 6 should clearly limit the steps of claim 1. Applicant has placed claim 6 into independent form to alleviate this problem.

With respect to claim 7, the Examiner asserts that Applicant is attempting to claim an end product. To the contrary, Applicant is stating a structural limitation in that the magnetic disc is adapted to work with a load/unload system. As explained in the application at pages 5, 12, the load/unload systems have a particular problem with fly stiction of the magnetic head, and the occurrence of a head crash defect and a thermal asperity defect resulting therefrom. As would be understood by one skilled in the art, particularly in light of the desire in load/unload systems for a flat and smooth surface having Rmax of 5 nm or less and Rp of 2.5 nm or less in order to improve a durability of the magnetic disk as taught at page 13, the recitation of a "load/unload" system signifies certain unique problems and structural characteristics. Thus, this limitation is viewed as an appropriate structural limitation that is well supported in the specification, and not simply a matter of preferential use, as characterized by the Examiner.

Claim Rejections - 35 U.S.C. §102

Claims 1, 3 and 5-7 are rejected under 35 U.S.C. § 102(e) as being anticipated by Shimada (6,632,547). This rejection is traversed for at least the following reasons.

In framing the rejection, the Examiner notes that Shimada teaches a method of polishing a glass substrate (that uses a treating liquid having colloidal particles, a tape and a chemical strengthening, at cols. 3-5. The Examiner does not point to any consideration of a direction of texture formation.

Claims 1-7 are rejected under 35 U.S.C. § 102(e) as being anticipated by Saito (2003/0110803). This rejection is traversed for at least the following reasons.

The Examiner makes brief reference to the disclosure of a treating liquid with colloidal particles 40, treating liquid of pure water (para. 98), a tape 30 and a chemical strengthening of a glass substrate in supporting the rejection. Again, the Examiner does not point to any consideration of a direction of texture formation.

Claims 1-4 and 6-7 are rejected under 35 U.S.C. § 102(e) as being anticipated by Marukawa (6,315,638). This rejection is traversed for at least the following reasons.

Again, the Examiner makes brief reference to the teaching of a method of polishing a glass substrate using a treating liquid with a slurry 31, a treating liquid of pure water (col. 4, lines 55-60) and a tape 7. The Examiner does not point to any consideration of a direction of texture formation.

As a preliminary matter, Applicants respectfully note that claim 1 has been amended to recite a particular texture on the principal surface of the glass disk. According to the present invention as recited in amended claim 1, the invention is a method of producing a glass substrate for a magnetic disk, comprising several steps. First, there is a step of polishing a principal surface of a glass substrate to impart a texture thereon, the texture being formed in a particular direction, namely, along a circumference direction of the magnetic disk. Second, there is a step of supplying a treating liquid onto the principal surface of the glass substrate. Finally, there is a step of pressing a tape against the principal surface of the glass substrate and moving the glass substrate and the tape relative to each other to clean the principal surface.

Thus, the present invention has the following expressly claimed features that frame a problem that appears in the art and a solution that is uniquely provided by the inventors and is not found in the prior art:

- (1) The texture is formed along the circumference direction of the magnetic disk.
- (2) The treating liquid supplying step and the tape pressing step for cleaning the principle surface are carried out in order to reduce the disturbance of the texture formed on the principal surface of the glass substrate.

As described in page 3, line 23 to page 4, line 8 in the present specification, according to the study by the inventors, there is a specific reason why the disturbance in texture profile is caused on the glass substrate. In particular, the glass substrate has a high hardness, which is hard as compared with a substrate having a metal surface (e.g., aluminum). Therefore, when the glass substrate is polished with a tape to form a texture, the texture is often disturbed by biting of abrasive grains or small foreign matters into the surface. Further, since the glass substrate is an insulator, such biting is difficult to eliminate because of an electrostatic force generated by friction during polishing with the tape. The inventors discovered that the disturbance in texture profile, which causes degradation of the performance of the disk, is caused by the foregoing phenomena.

Based on a series of findings and considerations mentioned above, in the present invention, the treating liquid supplying step and the tape pressing step for cleaning the principle surface are carried out in order to reduce the disturbance of the texture formed on the principal surface of the glass substrate, as described in the above feature (2).

Shimada, Saito, Marukawa

By contrast, the cited references (Shimada, Saito, Marukawa) do not recognize the reason why the disturbance in texture profile is caused on the glass substrate. Accordingly, the cited references do not teach or disclose the above feature (2), i.e., “the treating liquid supplying step and the tape pressing step for cleaning the principle surface are carried out in order to reduce the disturbance of the texture formed on the principal surface of the glass substrate”.

Amendment under 37 C.F.R. § 1.111
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Furthermore, with respect to Marukawa, the Examiner asserts that "Marukawa (6315683) teaches a method comprising the steps of polishing glass substrate (abstract), a treating liquid (slurry col. 4, 31), a treating liquid (pure water col. 4, 55-60), and a tape (T)". However, Applicants respectfully submit that Marukawa (6315683) does not disclose one or more of those steps. Accordingly, Marukawa (6315683) is ineffective as an anticipatory reference.

As discussed above, the present invention is not anticipated by the cited references, and therefore, is clearly patentable over the cited references.

IDS

Applicants are concurrently submitting in an IDS several Japanese Unexamined Patent publications (JPA 2002-352422, 2000-343390, 2003-187421, and 2003-317227) cited in Japanese Office Actions.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

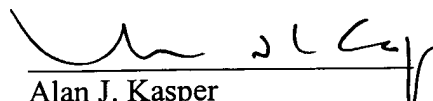
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